## Technical Specifications

### Compatibility

#### Supported IP cameras
- ONVIF compatible cameras
- RTSP compatible cameras

#### Supported video encoders
- ONVIF compatible encoders

#### Supported analog capture boards
- XECAP-400EF LP
- XECAP-800EF

#### Supported compression formats
- H.264, MPEG4, MJPEG

#### PTZ cameras
- ONVIF support (most manufacturers)
- RS485 support (Pelco P, Pelco D, Panasonic, American Dynamics)
- Support for camera presets
- Patrol functions
- Control PTZ cameras with mouse, keyboard or joystick

#### IP camera search
- UPnP, ONVIF

### Digital I/O
- ONVIF devices
- Modbus (e.g., MOXA I/O devices with network interface)
- Xecap 400EF/800EF capture board’s I/O unit

### Mobile use
- Android and iOS

### 360° cameras
- Virtual 360° view and dewarping
- Multiple views from single camera
- Mouse control on view
- Support for ImmerVision panomorph optics

### Joysticks
- USB HID joystick, controller and button support (Windows and Linux)
- AXIS T8311/8312, controller and button support (separate driver, Windows)

### Audio recording and playback
- Recording from ONVIF and RTSP supported devices
- Recording from computer’s line-in
- Play locally from computer’s line-out
- Play over network with speaker enabled devices (Axis and Dahua)
## System Requirements

### Server

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating system</td>
<td>Microsoft Windows 7 (32 &amp; 64 bit), 10 (32 &amp; 64 bit), Server 2012, Server 2012 R2, Server 2016, Linux CentOS 6, 7 (64 bit), macOS High Sierra, Mojave (64 bit)</td>
</tr>
<tr>
<td>Processor</td>
<td>Intel Celeron, Core i3, i5, i7 or Intel Xeon, multi processor support</td>
</tr>
<tr>
<td>RAM</td>
<td>4 GB or more</td>
</tr>
<tr>
<td>Disk space for software</td>
<td>1 GB</td>
</tr>
<tr>
<td>Disk space for recordings</td>
<td>Depending on camera count, bitrate, frame rate and desired length of recordings</td>
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### Client

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</tr>
<tr>
<td>Processor</td>
<td>Intel Celeron, Core i3 for max 8 simultaneous cameras, Intel Core i5 for max 16 simultaneous cameras, Intel Core i7 or higher for more than 16 simultaneous cameras</td>
</tr>
<tr>
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</tr>
<tr>
<td>Display driver</td>
<td>Intel or Nvidia, 256 MB RAM or more</td>
</tr>
</tbody>
</table>
## Application

### Client
- Remote viewing of recordings and real-time image from servers
- Use for control room computers
- Use for control room video walls
- Server settings management on a web interface

### Mobile app
- Can be used on a smartphone or a tablet
- Remote viewing of recordings and real-time image from servers
- Use of controllable cameras (PTZ)
- Area search from recordings

### Server
- Saves camera images on the local hard drive or NAS
- Operates as a link between other components in the system
- Operates either as a service or a graphic interface

### Mobile use
- Application can be downloaded from Apple App Store and Google Play

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Window

- Add multiple
- Separate timelines in each window
- Multiple tabs in each window

- Keyboard shortcuts
- Fullscreen mode

Tabs

- Add multiple to one window
- Rename
- Multiply
- Arrange by dragging
- Add camera images from multiple recorders
- Add widgets
- Arrange camera images and widgets freely inside a tab
- Automatic switching with adjustable delay
- Set order and delay of tab switching for each tab
- Switched with rules

- Import and export as files
- Share with other users
- Force for other users by pinning it with admin account
- Indicator for shared and pinned tabs
- Close
- Bring back from ‘Closed tabs’ menu
- Tabs that do not fit in the window can be opened from ‘All tabs’ menu
- Show and hide tab bar with keyboard shortcuts
- Keyboard shortcuts

Timeline

- Display recordings of cameras as bars
- Display audio recordings as a separate bars
- View recordings from multiple cameras in synchronization
- Synchronize multiple timelines in multiple windows
- Zoom with mouse scroll wheel
- Drag to move
- Jump to specific point of time and day
- Show which days have recordings in a calendar
- Show week numbers in calendar
- Show how far the playhead is in the recordings
- Add bookmarks
- List bookmarks
- Move between bookmarks
- Name bookmarks
- Play / Pause
- Play backwards / Pause ( 
- Fast forward (click more than once for speed multiplying)
- Rewind (click more than once for speed multiplying)
- Frame by frame
- Jump to live
- Double click to move

- Make selection(s)
- Clear selection(s)
- Create backup from selected time period(s)
- Create multiplexed video clip from selected time period(s)
- Show / hide timeline
- Keyboard shortcuts
Camera image

- Open multiple
- Filter cameras by server, group or if they are connected to this pc
- Alphabetic listing of filtered cameras
- Close individual cameras
- Close multiple cameras with filter
- Resize with snapping to grid. Grid size can be adjusted.
- Fit to screen for multiple camera images
- Rotate camera image clockwise and counter clockwise
- Stretch to fit selected aspect ratio
- Align inside selected grid cells
- Flip image horizontally or vertically
- Clone
- Right-click to open the Radial Menu
- Enable fisheye dewarping
- Enable Panomorph dewarping
- Show info (camera source, stream type, frames received, frames recorded, frame size, average size, bitrate, frames per second)
- Show recording indicator
- Show camera name
- Show camera and site number
- Show PTZ icon
- Color tag camera name
- Adjustable title bar size
- Dynamic title bar size
- Peek into and make it bigger while browsing recordings only from this camera

- Open in fullscreen
- Save image in JPG or PNG with desired resolution
- Save a video clip in MP4 with desired resolution
- Cut into multiple cameras on the fly when recording a video clip
- Save a multiplexed video clip from all cameras in the tab
- Isolate one or multiple cameras to the timeline and control them while keeping others on live
- Search motion on selected cameras only
- Search motion on selected areas on selected cameras only
- Control gates or other external devices with rule-customized buttons
- Control PTZ cameras by dragging cursor over camera image
- Show / hide PTZ crosshair with speedometer
- Zoom PTZ cameras with mouse scroll wheel
- Digital zoom cameras with mouse scroll wheel (hold Ctrl when zooming PTZ cameras)
- Select and save PTZ presets
- Select and save PTZ patrols
- Blink camera on map
- Listen to camera
- Speak to camera
- Control with rules
- Highlight camera image on PTZ selection
- Show border around PTZ selected camera image
- Blink camera image with rules
- Blink camera image on map
Users

- Username and password protection
- Multiple users
- Log in automatically
- Log out after inactivity
- Dual authorisation
- Limit duration of visible recordings for one user login
- Admin user
- Set passwords
- Permission groups
- Set permission group as default group for new users

Permissions

- Viewing live image
- Viewing recordings
- Access settings
- Access gallery
- Remote access to this recorder
- Access to RTSP server
- View system errors
- View user logs
- Acknowledge system errors
- Hardware addition/removal
- Hardware adjustment
- Access rules
- Access user control
- Access group control
- Access storage control
- Snapshot taking
- Video clip creation
- Quit program
- Control camera presets
- Control PTZ cameras
- Import backups
- Edit mode
- Import / Export tabs
- Access to selected cameras
Rules

- Control recorder functionality and external devices and send information on different events
- Add multiple
- Duplicate
- Set name
- Multiple conditions in one rule
- Multiple actions in one rule
- All conditions are met
- Some of the conditions are met
- Release action

Conditions

- Schedule
- Digital input e.g. Modbus
- Another rule
- Loss of video signal
- Wait for another rule
- Motion detection
- Timer pulse
- Setting
- Connection lost
- Recording error
- Button pressed
- Message received

Actions

- Control digital output
- Switch analog video output
- Call PTZ preset
- Internal command
- Notification/Alarm
- Change setting
- Send HTTP URL request
- Place bookmark
- Send email
- Push camera to virtual window
- Write to serial port
- Change tab
- Blink device on map
- Blink camera image
# Technical Specifications

16 November 2018

## Widgets

### Buttons
- Trigger rules with multiple conditions and actions
- Add multiple
- Drag to arrange
- Responsive layout
- Buttons in server can be used in clients
- Set name, icon and color
- Set to be toggleable
- Control external I/O devices
- Control program functions

### Virtual window
- Open camera image from a list of local and remote cameras
- History of opened cameras with backward and forward buttons
- Open camera by site and camera number
- Open camera with keyboard or joystick numeric keypad
- Open camera with a rule
- Same functions as in a regular camera image
- A window can have multiple virtual window widgets
- Set automatic switching of camera images with delay and order

### Notifications
- Generate from rules
- Thumbnail camera image from event
- Set color for different events
- Link to corresponding camera
- Open camera image from time of the event
- List multiple
- Clear from list
- Clear all
- Show time of the event
- Show name of the camera
- Show information of event

## Map
- Set JPG or PNG image as a background
- Invert image colors
- Change opacity of background
- Set name
- Group maps
- Breadcrumb navigation
- Place cameras
- Monitor I/O input states
- Create shortcuts between maps
- Set sizes of items
- Dynamic sizing of items
- Show or hide labels of items
- Set position of labels on individual items
- Change map to one containing the camera item when blinking camera on map
- Enlarge cameras to Peek by clicking camera items
- Drag items into place
- Change color and icon of items
- Rename items
- Remove items
- Inherit camera name color to map
- Remove
- Remove all
- Export and import
- Adjust to any size on the grid
- Change maps during editing
- Zoom with mouse scroll wheel
- Drag to move
Alarm log

- Alarm event programming can be triggered by digital I/O, connection status, video signal loss, motion detection and more
- Assign text to alarms

Backup

- Save full-quality backup copies
- Set start and end points freely
- Quick search and area search can be used to filter unwanted movement
- Backup copies can be viewed using the Ksenos client
- Quick and area searches can be made in the backup file
- Video clips and screenshots can be saved from the backup file

Storage space

- Simple storage space management
- Storage space is shown as a percentage of total available space
- Recording time can be specified to a date
- Shows the date of the oldest recording

Built-in motion detection

- Functions with all types of cameras regardless of manufacturer
- Sensitivity and noise reduction are adjustable
- Saves the location of motion in the image
- Mask off areas with constant movement e.g. trees
- Set separate motion detection areas with different sensitivity

Automatic Number Plate Recognition

- Schedules can be created in the system to restrict vehicle access based on weekdays of time of day
- Each vehicle entered into the system is given a specific access level. Access levels are used to determine which gates will be opened for the vehicle.
- Access levels include restrictions based on time, gate and number of openings
- Access levels can be vehicle-specific or shared
- Plate recognitions performed by the system can be browsed using different search criteria. Clicking on the plate recognition will show an image recording of the event.
Diagnostics

- Notification events can be set in the system in different ways, such as rules, motion detection from image, external I/O data, or internal software command.

- Notifications can contain a free text field, event colours are customisable, and a preview image is attached to the notification.

- You can access a recording attached to a notification by one click.

- Status information and preset alarms are saved in the alarm log in chronological order.

- The alarm log contains an acknowledgement functionality.

- Ksenos sends notifications of possible system errors, such as camera or server connection errors, recording errors, hard drive faults and power supply faults (fault-tolerant servers).

- Dell iDRAC support.